

Appl. No. 10/651,322
Atty. Docket No. 8441C
Amdt. dated 16 July 2004
Reply to Office Action of 06/16/2004
Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) An atmosphere modifying device comprising:
 - a. a carbon dioxide emitter, wherein the carbon dioxide emitter emits carbon dioxide at a rate of about 1 cubic centimeters per hour or greater, and
 - b. an oxygen scavenger.
2. (Original) The device of claim 1, wherein the carbon dioxide emitter comprises:
 - i. a carbonate selected from the group consisting of a monocarbonate, a bicarbonate, and combinations thereof; and
 - ii. an organic acid.
3. (Original) The device of claim 2, wherein ingredients i and ii are present in a molar ratio ii:i of about 0.3:1 to about 5:1.
4. (Original) The device of claim 2, wherein the monocarbonate and the bicarbonate are present in a molar ratio monocarbonate:bicarbonate of about 0:1 to about 100:1.
5. (Original) The device of claim 2, wherein the monocarbonate is sodium carbonate, the bicarbonate is sodium bicarbonate, and the organic acid is citric acid.
6. (Original) The device of claim 2, wherein the carbonate has an average particle size of about 5 to about 1000 micrometers.
7. (Original) The device of claim 1, wherein the oxygen scavenger is selected from the group consisting of an iron source mixed with a salt and ferrous carbonate mixed with ascorbic acid.
8. (Original) The device of claim 7, wherein the amounts of the iron source and the salt are selected such that the oxygen scavenger removes oxygen at a rate of about 5 cubic centimeters per hour or greater.

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9. (Original) The device of claim 1, further comprising: c. an ethylene scavenger.
10. (Original) The device of claim 9, wherein the ethylene scavenger is selected from the group consisting of CaO_2 , modified alumina, zeolite impregnated with permanganate, activated carbon, and combinations thereof.
11. (Original) The device of claim 10, wherein the device comprises a first compartment containing the carbon dioxide emitter, a second compartment containing the oxygen scavenger, and a third compartment containing the ethylene scavenger; wherein the first, second, and third compartments comprise a gas permeable material.
12. (Original) The device of claim 11, wherein the first, second, and third compartments comprise a liquid impermeable material.
13. (Original) The device of claim 9, wherein the device comprises a compartment containing more than one of components a, b, and c.
14. (Original) The device of claim 9, wherein components a, b, and c are generally recognized as safe materials.
15. (Original) The device of claim 9, wherein the device further comprises one or more components selected from the group consisting of:
- an activator,
 - a controller controlling emission rate of carbon dioxide and scavenging rate of oxygen and ethylene,
 - a moisture controlling mechanism,
 - a biological active,
 - a carbon monoxide emitter, and
 - an antimicrobial emitter.
16. (Withdrawn) A package for keeping produce fresh comprising:
- i. a container, and
 - ii. an atmosphere modifying device according to claim 1 contained within the container.

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17. (Withdrawn) The package of claim 16, wherein the package further comprises one or more components selected from the group consisting of:

- an activator,
 - a controller controlling emission rate of carbon dioxide and scavenging rate of oxygen
- and ethylene,
- a moisture controlling mechanism,
 - a biological active,
 - a carbon monoxide emitter, and
 - an antimicrobial emitter.

18. (Withdrawn) The package of claim 16, wherein the device modifies the atmosphere in the headspace of the container to contain about 2 to about 21 volume % oxygen, about 0.5 to about 40 volume % carbon dioxide, and about 0 to about 10 parts per million ethylene.

19. (Withdrawn) The package of claim 18, wherein the device modifies the atmosphere in the headspace of the container to contain about 5 to about 10 volume % oxygen, about 3 to about 15 volume % carbon dioxide, and about 0 to about 0.1 part per million ethylene.

20. (Withdrawn) The package of claim 16, wherein the device modifies the atmosphere in the headspace of the container within about 0.5 to about 24 hours after produce is placed in the container and the container is closed.

21. (Withdrawn) The package of claim 16, wherein the container comprises a first compartment for containing the atmosphere modifying device and a second compartment for containing produce, wherein the first compartment and the second compartment are separated by a liquid and vapor permeable barrier.

22. (Withdrawn) The package of Claim 16 wherein said container and said atmosphere modifying device are integrated into a single component.

23. (Withdrawn) A method for prolonging storage life of produce comprising:

- 1) placing the produce in a container with an atmosphere modifying device according to claim 1, and
- 2) closing the container.

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24. (Withdrawn) The method of claim 23, further comprising:

- 3) opening the container to add or remove produce at least one time, and
- 4) reclosing the container.

25. (Withdrawn) The method of claim 23, wherein the device modifies the atmosphere in the headspace of the container to contain about 2 to about 21 volume % oxygen, about 0.5 to about 40 volume % carbon dioxide, and about 0 to about 10 parts per million ethylene after the completion of step 2).

26. (Withdrawn) The method of claim 25, wherein the device modifies the atmosphere in the headspace of the container to contain about 5 to about 10 volume % oxygen, about 3 to about 15 volume % carbon dioxide, and about 0 to about 0.1 part per million ethylene.

27. (Withdrawn) The method of claim 23, wherein the device modifies the atmosphere in the headspace of the container within about 0.5 to about 24 hours after the completion of step 2).

28. (Withdrawn) The method of claim 24, wherein the device modifies the atmosphere in the headspace of the container to contain about 2 to about 21 volume % oxygen, about 0.5 to about 40 volume % carbon dioxide, and about 0 to about 10 parts per million ethylene after step 4).

29. (Withdrawn) The method of claim 28, wherein the device modifies the atmosphere in the headspace of the container to contain about 5 to about 10 volume % oxygen, about 3 to about 15 volume % carbon dioxide, and about 0 to about 0.1 part per million ethylene.

30. (Withdrawn) The method of claim 24, wherein the device modifies the atmosphere in the headspace of the container within about 0.5 to about 24 hours after step 4).

31. (Withdrawn) The method of claim 23, further comprising washing the produce prior to step 1).

32. (Withdrawn) The method of claim 31, further comprising drying the produce after washing.

33. (Withdrawn) The method of claim 23, further comprising refrigerating the container.

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34. (Withdrawn) A method for promoting sale of produce comprising: providing informational indicia in association with the produce to indicate and/or communicate to a consumer of the produce that the produce can be kept fresh for longer periods of time by storing the produce in a package comprising:

- i. a container, and
- ii. an atmosphere modifying device according to claim 1 contained within the container.

35. (Withdrawn) A kit for prolonging the storage life of produce comprising:

- a) an atmosphere modifying device according to claim 1,
- b) a gas impermeable packing material containing the atmosphere modifying device, and
- c) information or instructions, or both, describing how to use the atmosphere modifying device.

36. (Withdrawn) The kit of claim 35, further comprising:

- d) a container.